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EXAMINER

YECHURI, SITARAMARAO S

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte HANCUN CHEN,
MICHAEL STERUD, SYED NAVEED,
VERIVADA CHANDRASEKARAN, and
VITTO MONNI

Appeal 2016-000125
Application 12/635,542
Technology Center 2800

Before ADRIENE LEPIANE HANLON, CATHERINE Q. TIMM, and
JAMES C. HOUSEL, *Administrative Patent Judges*.

PER CURIAM.

DECISION ON APPEAL¹

STATEMENT OF THE CASE

Appellants² filed an appeal under 35 U.S.C. § 134 from the
Examiner's decision finally rejecting claims 1–3, 7, 11, and 14–18 under

¹ Our decision refers to Appellants' Specification filed Dec. 10, 2009 (Spec.), the Final Office Action mailed Oct. 3, 2014 (Final Act.), Appellants' Appeal Brief filed Mar. 20, 2015 (Appeal Br.), the Examiner's Answer mailed July 23, 2015 (Ans.), and Appellants' Reply Brief filed Sept. 22, 2015 (Reply Br.).

² Appellants identify the real party in interest as Boston Scientific Scimed, Inc. Appeal Br. 3.

35 U.S.C. § 103(a) as unpatentable over Hall³ in view of Smoller⁴ and rejecting claims 4–6, 14, and 15 under 35 U.S.C. § 103(a) over Hall and Smoller and further in view of Lehmann.⁵ We have jurisdiction under 35 U.S.C. §§ 6(b) and 134(a).

We REVERSE.

The claims on appeal are directed to methods of manufacturing a medical device, methods of forming a joint, and medical devices (*see, e.g.*, claims 1, 16, and 18). Appellants disclose there is a need for methods to improve the strength, durability, and/or properties of a joint between different metals. Spec. p. 1, ll. 14–19. Metallic members comprising different metals can form brittle intermetallic compounds with one another when welded, which create joints of low strength and low durability between the different metals. Spec. p. 2, ll. 3–4 and p. 6, l. 28 to p. 7, l. 3. To address this problem, Appellants disclose methods in which a weld material is interposed between surfaces of metallic structures to inhibit formation of intermetallic compounds. Spec. p. 1, ll. 22–27. The welding material may be, for example, a metal carbide in which the affinity of the metal for carbon is weaker than that of titanium for carbon or a metal nitride in which the affinity of the metal for nitrogen is weaker than that of titanium for nitrogen. Spec. p. 7, l. 28, to p. 8, l. 15.

Independent claim 1 is illustrative of the subject matter on appeal. Claim 1 is reproduced from the Claims Appendix of the Appeal Brief with

³ Hall, US 2005/0142377 A1, published June 30, 2005 (“Hall”).

⁴ Smoller et al., US 4,196,336, issued Apr. 1, 1980 (“Smoller”).

⁵ Lehmann et al., US 2002/0170888 A1, published Nov. 21, 2002 (“Lehmann”).

limitations at issue in the appeal italicized:

1. A method of manufacturing a medical device, the method comprising:
 - providing a first elongate metallic member comprising stainless steel and having a first welding surface;*
 - providing a second elongate metallic member comprising nickel-titanium alloy and having a second welding surface;*
 - applying a welding material to at least one of the welding surfaces;
 - disposing the first welding surface proximate the second welding surface; and
 - welding the welding surfaces and the welding material, forming a joint between the metallic members;
 - wherein the welding material comprises a metal carbide in which the metal has an affinity for carbon that is weaker than that of titanium for carbon or a metal nitride in which the metal has an affinity for nitrogen that is weaker than that of titanium for nitrogen.*

Appeal Br. 11.

OPINION

Rejection over Hall and Smoller

Claims 1–3, 7, 11, and 14–18 are rejected under 35 U.S.C. § 103(a) as unpatentable over Hall in view of Smoller.

The dispositive issue on appeal is whether the Appellants have identified a reversible error in the Examiner’s finding of a reason to combine Hall and Smoller.

The Examiner finds Hall discloses a method of manufacturing a medical device in which a first elongate metallic member, a second elongate metallic member, and a welding material are welded together. Final Act. 2–

3. The first elongate metallic member is stainless steel wire and the second elongate metallic member is nickel-titanium wire. Final Act. 2.

The Examiner finds Hall does not disclose that the welding material is a metal carbide in which the metal has an affinity for carbon weaker than that of titanium for carbon or is a metal nitride in which the metal has an affinity for nitrogen weaker than that of titanium for nitrogen. Final Act. 3. The Examiner finds Smoller discloses hard surfacing of titanium with tungsten carbide by using a welding rod comprising titanium and tungsten carbide. Final Act. 3. The Examiner further finds tungsten has an affinity for carbon weaker than that of titanium for carbon. Final Act. 3. The Examiner concludes it would have been obvious to combine the processes of Hall and Smoller “to surface harden and protect the weld joint by tungsten carbide and the formation of titanium carbide and/or titanium nitride.” Final Act. 3–4.

Appellants contend Smoller does not disclose welding two dissimilar metals, such as a titanium alloy (e.g., a nickel-titanium alloy) and a ferrous alloy (e.g., stainless steel). Appeal Br. 7. Instead, Smoller is directed to hard surfacing titanium by applying tungsten carbide to its surface. Appeal Br. 7. As a result, one of ordinary skill in the art would not have applied the teachings of Smoller to a process of welding dissimilar metals, such as Hall. Appeal Br. 7; Reply Br. 4.

Appellants’ arguments are persuasive. Hall discloses a process of welding a nickel-titanium alloy to a ferrous alloy, such as stainless steel. Hall ¶ 18. Hall discloses the use of nickel or iron as a welding material in the welding process, not a metal carbide or metal nitride, as recited in claim 1. Hall ¶¶ 19 and 44–47.

Smoller discloses a process in which a welding rod made of titanium tube stock filled with tungsten carbide powder is used to deposit a layer of tungsten carbide on a single titanium object. Smoller col. 1, ll. 6–8, 26–30. However, Smoller is silent with regard to welding two metallic members, particularly two dissimilar metals, such as a nickel-titanium alloy and stainless steel, by using tungsten carbide as a welding material. Because the disclosure of Smoller does not relate to welding two dissimilar metals and provides no guidance for using tungsten carbide as a welding material in such a welding process, the Examiner’s evidence falls short of persuasively supporting the finding that one of ordinary skill in the art would have had a reason to modify Hall in view of the disclosure of Smoller to use tungsten carbide as a welding material to weld the stainless steel and nickel-titanium members in Hall’s process.

Instead, the Examiner has engaged in impermissible hindsight in the rejection of claim 1.

Any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning, but so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made and does not include knowledge gleaned only from applicant’s disclosure, such a reconstruction is proper.

In re McLaughlin, 443 F.2d 1392, 1395 (CCPA 1971). However, a fact finder must be aware “of the distortion caused by hindsight bias and must be cautious of arguments reliant upon *ex post* reasoning.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (citing *Graham v. John Deere Co.*, 383 U.S. 1, 36 (1966) (warning against a “temptation to read into the prior art the teachings of the invention in issue”)).

Therefore, we do not sustain the § 103(a) rejection of claims 1–3, 7, 11, and 14–18 over Hall and Smoller.

Rejection over Hall, Smoller, and Lehmann

Claims 4–6, 14, and 15 are rejected under 35 U.S.C. § 103(a) over Hall and Smoller and further in view of Lehmann. The rejection of claims 4–6, 14, and 15 includes Hall and Smoller and has the same deficiencies as the § 103 rejection of claims 1–3, 7, 11, and 14–18. Moreover, the Examiner does not rely upon Lehmann to remedy the deficiencies in the combination of Hall and Smoller. Therefore, we do not sustain the Examiner’s § 103(a) rejection of claims 4–6, 14, and 15.

DECISION

The Examiner’s decision is reversed.

REVERSED